

3. The mesoporous silica film as recited in claim 1, wherein said thickness has a standard deviation less than $\pm 5\%$.

4. The mesoporous silica film as recited in claim 1, wherein a porosity of said mesoporous silica film is disordered.

5. A mesoporous silica film having a thickness from about $0.1 \mu\text{m}$ to about $1.5 \mu\text{m}$ and a standard deviation about said thickness, wherein said standard deviation is less than $\pm 5\%$.

*duplicate
of claim 3*

6. The mesoporous silica film as recited in claim 5, wherein a dielectric constant of said mesoporous silica film is less than 3.

11

7. The mesoporous silica film as recited in claim 5, having a dielectric constant with a relative stability and an absolute stability.

11

8. The mesoporous silica film as recited in claim 5, having an average pore size less than or equal to about 20 nm.

11

9. The mesoporous silica film as recited in claim 5, having a porosity that is disordered.

4

10. A mesoporous silica film prepared from a surfactant containing solution, comprising a porosity that is disordered, said porosity having an average pore diameter of less than or equal to about 20 nm, and a film thickness from about $0.1 \mu\text{m}$ to about $1.5 \mu\text{m}$.

11. The mesoporous silica film as recited in claim 10, having a dielectric constant less than 3, said dielectric constant having both a relative stability and an absolute stability.

Cancel claims 12-52 ✓

Application No.
09/837,885

PAGE 2

MJM DO. NO. 1941-76

75 12. A mesoporous silica film characterized by:
a disordered porosity, lacking a regular geometric arrangement of pores, and
characterized by an x-ray diffraction peak between about 0.75 and about 2 degrees 2-
theta;
a dielectric constant less than 3.0 that is stable;
a film thickness from about 0.1 μm to about 1.5 μm ; and
an average pore diameter less than or equal to about 20 nm.

B2 76 13. A mesoporous silica film characterized by:
a disordered porosity as indicated by an absence of an XRD peak in the range
from 2 to 6 degrees 2-theta;
a dielectric constant less than 3.0 that is stable;
a film thickness from about 0.1 μm to about 1.5 μm ; and
an average pore diameter less than or equal to about 20 nm.

77 14. A mesoporous film characterized by:
a dielectric constant less than 3.0 that is stable;
a film thickness from about 0.1 μm to about 1.5 μm ; and
an average pore diameter less than or equal to about 20 nm.

Cancel claims 56-65 ✓

78 15. A mesoporous film having a dielectric constant less than 2.5, a film
thickness from about 0.2 μm to about 1.5 μm , and an average pore diameter less than
or equal to about 5 nm.

79 16. A mesoporous film having a thickness from about 0.2 μm to about 1.5
 μm and a standard deviation about said thickness that is less than +/- 5%.

80 17. A mesoporous silica film prepared from a surfactant containing solution, having a dielectric constant less than 3 that has both a relative stability and an absolute stability in a humid atmosphere, a film thickness from about 0.1 μm to about 1.5 μm , an average pore diameter less than or equal to about 20 nm, and a porosity that is disordered.

81 18. The mesoporous silica film as recited in claim 17, wherein disordered is indicated by the absence of an X-ray diffraction peak in the range of about 2 to about 6 degrees 2-theta.

82 19. The mesoporous silica film as recited in claim 17, wherein disordered porosity is characterized by an X-ray diffraction peak between about 0.75 and about 2 degrees 2-theta.

B2
Cont

[Cancel claims 71-74]

83 20. A surfactant-templated mesoporous dielectric film on a substrate prepared from a silica precursor solution by evaporation, wherein the film is characterized by disordered porosity.

84 21. The dielectric film of claim ⁸³20, wherein the silica precursor includes one or more of methyl and ethyl groups.

85 22. The dielectric film of claim ⁸³20, wherein the silica precursor includes one or more of alkyl and phenyl groups.

86 23. The dielectric film of claim ⁸³20, wherein the silica precursor includes carbon-containing groups.